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DECOMPRESSION SICKNESS AFFECTING  
THE TEMPOROMANDIBULAR JOINT

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## ABSTRACT OF:

Decompression sickness affecting the temporomandibular joint

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Three cases of pain-only decompression sickness of the temporomandibular joint following altitude chamber exposure are presented. A detailed interview of each individual revealed no other joint involvement or other complaints. A careful neurologic examination failed to disclose abnormalities. In each case, the pain resolved completely with recompression, supporting the diagnosis of decompression sickness. Decompression sickness limited to this small joint is extremely rare, and may be easily confused with other causes of joint pain.

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## DECOMPRESSION SICKNESS AFFECTING THE TEMPOROMANDIBULAR JOINT

Decompression sickness can involve any joint or muscle group, but is usually manifested by pain in or around large joints, such as the shoulder, elbow, hip, or knee. Involvement of smaller joints has been reported, but is much less common. This report describes three unusual cases of Type I (pain-only) decompression sickness involving the temporomandibular joint (TMJ).

### CASE 1

A 19-year-old female United States Air Force Academy cadet was involved in a routine altitude chamber training flight to 25,000 feet. The flight was uneventful, with no problems noted during or immediately after the exposure. Three hours after the exposure, the student began to note unilateral TMJ pain. The pain persisted, unchanged in intensity for several hours, and she sought medical attention. She had no prior history of TMJ pain, and no prior history of decompression sickness. The student had no complaints other than unilateral TMJ pain. Physical examination, including complete neurological examination, disclosed no abnormalities. Based on a history of joint pain developing after an altitude chamber exposure, a diagnosis of decompression sickness was entertained, and recompression was immediately begun. Following 40 minutes on 100 percent oxygen at 2.8 ATA, the TMJ pain resolved completely. She completed a USAF Table 6 without incident, and remained pain free.

## CASE 2

A 24-year-old life support technician had a routine altitude chamber exposure to 35,000 feet. Near the end of an otherwise uneventful exposure, he experienced a sudden sharp pain in the right TMJ while doing a forward jaw thrust to clear his ears. The pain persisted after the flight, and was not reported. The following day he was involved in another chamber flight, this time to 43,000 feet. The pain persisted without change. When the pain had not resolved by the following morning, he presented to the flight surgeon for evaluation. He denied pain in other joints, and had no prior history of TMJ pain or decompression sickness. Examination was unremarkable - the involved TMJ was not tender to palpation or movement, and no neurologic abnormalities were present. Oxygen recompression therapy was begun on a USAF Table 6 (2.8 ATA). Significant improvement was noted during descent, and within 30 minutes at depth the pain had completely resolved. The TMJ discomfort did not recur.

## CASE 3

A 24-year old female technician had an altitude chamber flight to 30,000 feet. Two hours after the flight she developed pain in the left TMJ, which she did not report. The following day she had another chamber flight to 25,000 feet, followed by a rapid decompression. Thirty minutes after the exposure she noted worsening of the TMJ pain, which was now bilateral. The pain increased in severity over the next 6-8 hours, and was accompanied by a frontal headache. At this point she presented to her flight surgeon, who noted bilateral TMJ tenderness and pain on opening the mouth to the point of trismus. Neurologic examination was normal. Based on a diagnosis of decompression sickness, recompression therapy was immediately begun, using a USAF Table 6 treatment. After 20 minutes on 100% oxygen at 60 FSW the TMJ pain was completely resolved. By the end

of the treatment dive all symptoms had resolved. Following the dive she remained asymptomatic.

## DISCUSSION

Decompression sickness most commonly involves pain in or near large joints. The etiology of the pain caused by decompression sickness remains unclear. In a study of 935 cases of decompression sickness among divers, Rivera noted the joints most commonly affected are the shoulder and elbow.<sup>1</sup> Goad also notes these joints to be most commonly affected, followed by the wrists, hands, hips, knees, and ankles.<sup>2</sup> Neither of these authors notes the occurrence of DCS limited to the TMJ. Decompression sickness of the TMJ is a rare occurrence; we are unaware of any prior reports describing involvement of this joint. Development of joint pain following altitude chamber exposure which completely resolved promptly upon recompression is consistent with the diagnosis of Type 1 DCS.

TMJ pain or discomfort is a frequent complaint among SCUBA divers. The most common etiology is from jaw fatigue, especially after long or repetitive dives, or from a poorly fitting regulator. In patients presenting with TMJ pain following diving, a diagnosis of DCS should be considered. Such patients should have a thorough evaluation. Information should be obtained regarding the dive profile, prior history of joint pain or DCS, and whether other symptoms are present which are suggestive of decompression sickness. Examination should include a complete neurological examination. Whenever doubts exist regarding the etiology of symptoms, recompression in a hyperbaric chamber should be considered.

## REFERENCES

1. Rivera JC. Decompression sickness among divers: An analysis of 935 cases. *Mil Med* 1964; 129: 314-334.
2. Goad RF. Diagnosis and treatment of decompression sickness. In: Shilling CW, Carlston CB, Mathias RA, eds. *The physician's guide to diving medicine*. New York, Plenum Press, 1984: 289.